

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Cryo-EM from Cells to Molecules: Multi-Scale Visualization of Biological Systems (F1)

February 4-8, 2018 • Granlibakken Tahoe • Tahoe City, California, USA

Scientific Organizers: Georgios Skiniotis, Elizabeth Villa and Andrew B. Ward

Sponsored by Pfizer Inc.

Abstract & Scholarship Deadline: October 5, 2017 / Abstract Deadline: November 7, 2017 / Discounted Registration Deadline: December 7, 2017

SUNDAY, FEBRUARY 4

Arrival and Registration

MONDAY, FEBRUARY 5

Welcome and Keynote Address

Patrick Cramer, Max Planck Institute for Biophysical Chemistry, Germany
Insights into Gene Transcription: An Integrated Structural Biology Approach

Visualizing Cells

Elizabeth Villa, University of California, San Diego, USA
Opening Windows into the Cell: Bringing Structure to Cell Biology using Cryo-Electron Tomography

Grant J. Jensen, California Institute of Technology, USA
Structural Biology in vivo: Correlating Cryo-ET to Fluorescence Microscopy

Mark H. Ellisman, University of California San Diego, USA
The Big Picture of Small Things

Short Talk(s) Chosen from Abstracts

Workshop 1: Specimen Preparation and Troubleshooting

Short Talks Chosen from Abstracts

Visualizing Subcellular Compartments

Daniela Nicastro, University of Texas Southwestern Medical Center, USA
Cryo-Electron Tomography Sheds Light into Ciliary Structure and Function

Jun Liu, University of Texas Medical School at Houston, USA
High-Throughput Cryo-Electron Tomography: Visualizing Molecular Machines in Cells

Kay Grünwald, University of Oxford, UK
Trafficking Vesicles and Enveloped Viruses

Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, FEBRUARY 6

Translational Cryo-EM

Speaker to be Announced
Applications of Cryo-EM in Pharmaceutical Industry

Seungil Han, Pfizer Inc., USA
Applications of Cryo-EM in Small Molecule and Biologics Drug Design

Andrew B. Ward, The Scripps Research Institute, USA
Structure-Based Vaccine Design

Gira Bhabha, Skirball Institute, NYU School of Medicine, USA
Architectures of Lipid Transport Systems in Bacteria

Short Talk(s) Chosen from Abstracts

Cryo-EM of Small Single Particles

Dmitry Lyumkis, The Salk Institute for Biological Studies, USA
High-Resolution Cryo-EM Studies of Retroviral Intasomes

Speaker to be Announced

Maofu Liao, Harvard Medical School, USA
Single Particle Cryo-EM Studies of Lipid-Protein Interactions

Short Talk Chosen from Abstracts

Poster Session 2

WEDNESDAY, FEBRUARY 7

Cryo-EM of Large Macromolecular Assemblies

Kiyoshi Nagai, Medical Research Council, UK
Structure of the Spliceosome: Towards Understanding Catalytic Mechanism

Adam Frost, University of California, San Francisco, USA
Function Follows Form: Cryo-EM Insights into Cell Biology

Eva Nogales, University of California, Berkeley, USA
Understanding Macromolecular Complex Assembly, Interactions and Dynamics through Cryo-EM

Speaker to be Announced

Short Talk(s) Chosen from Abstracts

Technological Advances in Cryo-EM

Radostin Danev, Max Planck Institute of Biochemistry, Germany
Single Particle Imaging with the Volta Phase Plate

Bridget Carragher, New York Structural Biology Center, USA
New Approaches to Cryo-EM Specimen Preparation

Speaker to be Announced

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, FEBRUARY 8

Cryo-EM of Membrane Proteins

Georgios Skiniotis, Stanford University, USA
Breaking into GPCR Structure and Dynamics through Cryo-EM

Judy Hirst, MRC Mitochondrial Biology Unit, UK
CryoEM Structures of Mitochondrial Complex I

Eric Gouaux, Oregon Health & Science University, USA
Talk Title to be Announced

Doreen Matthies, National Institutes of Health, USA
Single-Particle Cryo-EM Studies of a Magnesium Ion Channel

Short Talk(s) Chosen from Abstracts

Workshop 2: Modeling and Refining Structures of Macromolecules in Cryo-EM Maps

Short Talks Chosen from Abstracts

Frontiers in Cryo-EM

Andrej Sali, University of California, San Francisco, USA
Integrative Modeling of Biomolecular Assemblies and Pathways

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David Baker, University of Washington, USA

Tailoring Scaffolds for Structure Determination of Small Proteins by Cryo-EM

Closing Keynote Address

Joachim Frank, Columbia University, USA

Story in a Sample: Multiple Ribosome Structures in a Single Cryo-EM Experiment

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

FRIDAY, FEBRUARY 9

Departure